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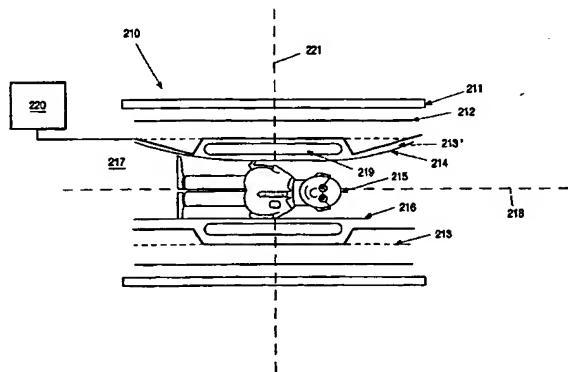
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[Continued on next page]

(54) Title: COIL SYSTEM FOR AN MR APPARATUS AND AN MR APPARATUS PROVIDED WITH SUCH A COIL SYSTEM



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(57) Abstract: A coil system (210) for an apparatus operating in conformity with the spin resonance or magnetic resonance (MR) method encloses an examination space (217) which extends along an axis (218) and is intended to receive a patient (215). It includes an inner RF coil (219), an inner sub-coil (213') which externally encloses the RF coil (219) and projects beyond the RF coil (219) in the axial direction at both sides, and an active shield (212) which externally encloses the inner sub-coil (213') and constitutes a gradient coil arrangement in conjunction with the inner sub-coil (213'). For specified gradients, the energy required for the gradient coil arrangement (213', 212) in such a coil system is reduced in that the volume occupied by the inner sub-coil (213') is extended in the axial direction by way of regions extending beyond the RF coil (219) in the direction of the axis (218). It is an essential aspect that generally three gradient coils are accommodated in the volume enclosed by the gradient coil arrangement (213', 212). This layered arrangement produces three mutually perpendicular gradient fields as usual. However, it is not necessary to calculate these fields to be such that they extend perpendicularly to one another. All three coil arrangements per se require a smaller energy component in comparison with the normal case.



SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

INSPEC, WPI Data, PAJ, EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 512 828 A (G. PAUSCH, H. HENTZELT) 30 April 1996 (1996-04-30) column 2, line 66 -column 5, line 63 figures 5-10,12,15-20 ---	1-6
A	EP 0 672 915 A (PICKER INTERNATIONAL, INC) 20 September 1995 (1995-09-20) page 2, line 48 -page 3, line 7 page 3, line 40 -page 4, line 3 figures 2,3,5-8 ---	1,6
A	US 6 154 110 A (TAKESHIMA HIROTAKA) 28 November 2000 (2000-11-28) cited in the application column 8, line 16 - line 31; figure 7 ---	1,6 -/-

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